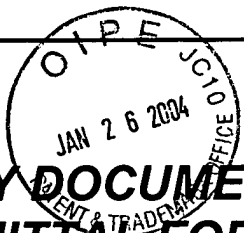


**PRIORITY DOCUMENT
TRANSMITTAL FORM**



First Named Inventor	John Kam Ho Lee
Title	Burglar Alarm System Having Reduced Wiring
Serial No.	10/748,575
Filing Date	December 30, 2003
Examiner	
Group Art Unit	
Attorney Docket Number	MCHK/146/US
Date	January 21, 2004

Mail Stop Document Services
Director of the United States Patent
and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

SUBMISSION OF PRIORITY DOCUMENT

Applicant claims priority from Application No. 0300097.3 filed January 3, 2003 in the United Kingdom. A certified copy of the priority application is enclosed.

Respectfully Submitted,

John Kam Ho Lee

By: 
Guy D. Yale
Registration No. 29,125
Alix, Yale & Ristas, LLP
Attorney for Applicant

Date: January 21, 2004
750 Main Street, Suite 1400
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Our Ref: MCHK/146/US

SIGNATURE OF APPLICANT, ATTORNEY OR AGENT

Firm or
Individual name

Guy D. Yale

Reg. No.

29,125

Signature

Date

January 21, 2004

Attorney's Docket No.

MCHK/146/US



10/248,576
10/25/03



INVESTOR IN PEOPLE

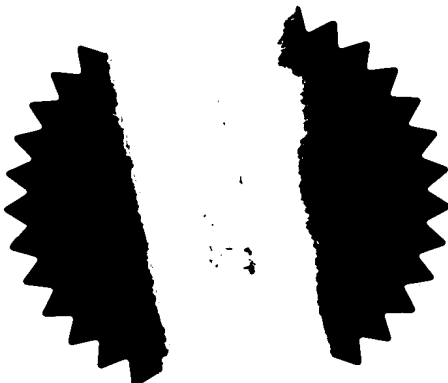
The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

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Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.



Signed

He Behen

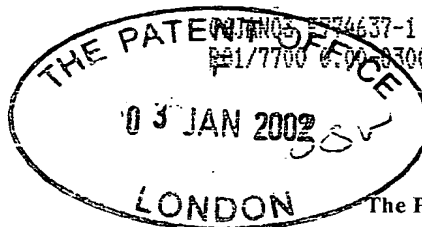
Dated

24 December 2003

Patents Form 1/77

Patents Act 1977
(Rule 16)

The
**Patent
Office**



Patent No. 2334637-1 D02999
P.1/7700 G.99 0300097.3

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference **GBP87369**

2. Patent application number
(The Patent Office will fill in this part)

0300097.3

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Leeds Electronic Eng. Ltd.,
Flat B, 21/F., Yally Ind. Bldg.,
6 Yip Fat St.,
Won Chuk Hang

Hong Kong

Patents ADP number (if you know it)

8536708001

If the applicant is a corporate body, give the country/state of its incorporation

Hong Kong

4. Title of the invention **Burglar Alarm System Having Reduced Wiring**

5. Name of your agent (if you have one)
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Marks & Clerk
57 - 60 Lincolns Inn fields
London WC2A 3LS

Patents ADP number (if you know it)

18001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country
Priority application No
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent

required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

See note (d))

Yes

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	0
Description	7
Claim(s)	1
Abstract	1
Drawing(s)	4 <i>xx</i>

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77) 1

Request for preliminary examination and search (Patents Form 9/77) 1

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature *Marks - Ark* Date: 3 January 2003

12. Name and daytime telephone number of person to contact in the United Kingdom

GB Patent Filings
0207 400 3000

Patents Form 7/77

Patents Act 1977
(Rule 15)



**Statement of inventorship and of
right to grant of a patent**

The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference GBP87369
2. Patent application number 0300097.3
(if you know it)
3. Full name of the or of each applicant Leeds Electronic Eng. Ltd.,
4. Title of the invention Burglar Alarm System Having Reduced Wiring
5. State how the applicant(s) derived the right
from the inventor(s) to be granted a patent By Virtue of employment.
6. How many, if any, additional Patents Forms
7/77 are attached to this form?
(see note (c))
7. I/We believe that the person(s) named over the page
(and on any extra copies of this form) is/are the inventor(s) of the
invention which the above patent application relates to.
- | Signature | Date |
|--------------------|----------------|
| <i>Mr K. + Chl</i> | 3 January 2003 |
8. Name and daytime telephone number of
person to contact in the United Kingdom GB Patent Filing section 0207 400 3000

Notes

- a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.
- b) Write your answers in capital letters using black ink or you may type them.
- c) If there are more than three inventors, please write the names and addresses of the other inventors on the back of another Patents Form 7/77 and attach it to this form.
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- e) Once you have filled in the form you must remember to sign and date it.

Patents Form 7/77

Enter the full names, addresses and postcodes of the inventors in the boxes and underline the surnames

Lee, John Kam Ho
c/o Leeds Electronic Eng. Ltd.
Flat B, 21/F., Yally Ind. Bldg.,
6 Yip Fat St.,
Wong Chuk Hang
Hong Kong

Patents ADP number (if you know it):

8536724001

Reminder
Have you signed the form?

Patents Form 7/77

BURGLAR ALARM SYSTEM HAVING REDUCED WIRING

Field of the Invention

5 Normal hard-wired burglar alarm systems for domestic and commercial applications include a number of event sensors situated around a space to be monitored, each in communication with a central controller. Some installations have a central controller communicating
10 with a number of remote control panels or keypads - one at each main entry to the premises. Such alarm systems also employ a siren sounder/bell box, usually attached in a prominent out-of-reach position at the front of the premises. For example, some such boxes employ a flashing
15 strobe light and are mounted beneath the eaves at the front of a house.

Ordinarily, a cable having six or more internal conductors extends between the central controller and the
20 siren sounder/bell box, and between the central controller and each remote control panel/keypad. One pair of conductors provides electrical power to the bell box or keypad, another pair of conductors provides a tamper circuit and the other pair of conductors is for
25 signal transmission.

Objects of the Invention

It is an object of the present invention to reduce the
5 required number of conductors between an alarm central
controller and a bell box and/or a remote control panel.

Disclosure of the Invention

10 There is disclosed herein an alarm system comprising:
an alarm controller,
a remote input/output device,
a cable extending from the alarm controller to the
remote input/output device, the cable comprising two
15 conductors providing power to the remote input/output
device, and
a signal processor at the controller monitoring and
processing voltage and current fluctuations in the
conductors and controlling functions of the alarm system.
20
Preferably the alarm system further comprises a mixer at
the remote input/output device operative to affect current
and voltage at the two conductors.
25 Preferably the signal processor monitors for predefined
voltage and current levels at the two conductors.

Preferably the mixer applies predefined voltage and

current levels at the two conductors.

Definition

5

As used herein, the phrase "remote input/output device" is intended to encompass entry panels such as keypads, or other input devices such as card readers, iris scanners or fingerprint scanners for example, as well as
10 visible/audible devices such as a flashing light, strobe light, siren sounder, or bell box.

Brief Description of the Drawings

15 A preferred form of the present invention will now be describe by way of example with reference to the accompanying drawings, wherein:

Figure 1 is a schematic diagram of a conventional prior
20 art control panel communicating via six wires with a remote keypad,

Figure 2 is a schematic diagram of a control panel communicating via two wires with a remote keypad,

25

Figure 3 is a schematic circuit diagram showing circuitry in the control panel's signal processor and the remote keypad,

Figure 4 is a schematic detailed circuit diagram of the remote keypad, handed

Figure 5 is a schematic detailed circuit diagram of the control panel.

Description of the Preferred Embodiment

In Figure 1 of the accompanying drawing there is depicted schematically a prior art conventional burglar alarm control panel 10 connected by a six-wire conductor 11 to a remote keypad 12. Two of these wires are for DC supply, two wires are for the data transmission and two wires are for tamper indication. As the remote keypad 12 can be quite some distance from the control panel 10, wiring can be expensive. Furthermore, it is necessary that the installation technician carefully connect the colour-coded wires to the correct terminals at both the control panel and remote keypad.

On the other hand, the arrangement depicted schematically in Figure 2 requires only a two-conductor cable 11 between the control panel 10 and remote keypad 12. It is comparatively inexpensive and simple to install the system of Figure 2 because the two-conductor cable can be installed at either polarity and there is no need to mess around with wires of different colour. This reduces installation errors. Furthermore, the two-conductor unit

will perform all of the tasks of the six-wire conventional unit, by use of a signal processor and a mixer.

There is a mixer circuit 13 at the remote keypad 12 and a
5 signal processor 14 at the control panel 10. The voltage
and current in the two-conductor line 11 varies to
indicate particular signals. The differing levels of
voltage/current will be assigned to activate the functions
for the control system or the remote unit through the
10 signal processor and mixer. The processor 14 and mixer 13
both work to transmit and receive signals via the two-
conductor cable. A reading of line voltage and/or current
at the pre-assigned levels will result in correct
functioning of the system. The signal processor is
15 ordinarily to be built-in to the main control panel 10.
The mixer will ordinarily be built-in or installed at the
remote unit.

Different output signals from the control system through
20 the signal processor will change the voltage and/or
current in the two-conductor cable to different levels.
As the mixer in the remote control unit at the other end
of line receives different voltage or current levels, the
mixer will inform the remote unit what to do.

25

Different output signals from the remote unit through the
mixer will also change the current or voltage in the two-
conductor cable to different levels. At the other end of

the cable, the signal processor receives different current and voltage levels in the line and thereby informs the control system to function accordingly.

5 Current Level Activation from Mixer

Once the mixer 13 receives a high-level signal from the keypad 12 by activating any key on the keypad, the transistor Q2 works and draws high current by which the
10 total current of the remote keypad is increased. This increasing current will turn the transistor Q9 off, then there is a high-level voltage at R84 sent to the SIGNAL port 33# of the CPU at the control panel.

15 Voltage Level Activation from Control Panel Signal Processor

After the signal processor of the control panel receives an alarm signal from the alarm hold signal port 37# of the
20 CPU at the control panel, it creates a high-level voltage to the transistor Q2R. The voltage level of the two conductors 11 drops to a level whereupon Zener diode ZD2 stops and the transistor Q3 switches off to light up LED1 and the buzzer beeps.

25

Current Level Activation from Two Conductor's

If the two-conductor cable is cut, there will be no

current drawn by the remote keypad. There will also be much less current passing through R87 and R88 and the transistor Q10 will switch off. As a result, there will be higher voltage at port 26# at the CPU of the control
5 panel, thus indicating tampering.

The bridges D1, D2, D3 and D4 make for a two-conductor cable having no polarity.

10 The transistor Q1R is for voltage level changing and protection against short-circuiting of the two conductors.

It should be appreciated that modifications and alterations obvious to those of skilled in the art are not
15 to be considered as beyond the scope of the present invention. For example, although the drawings and above description relate to the association between a remote keypad and the central processor, the invention is equally applicable to a remote bell box or siren sounder and its
20 association with the central processor.

CLAIMS:

1. An alarm system comprising:
an alarm controller,
5 a remote input/output device,
a cable extending from the alarm controller to the
remote input/output device, the cable comprising two
conductors providing power to the remote input/output
device, and
10 a signal processor at the controller monitoring and
processing voltage and current fluctuations in the
conductors and controlling functions of the alarm system.
2. The alarm system of Claim 1 further comprising a
15 mixer at the remote input/output device operative to
affect current and voltage at the two conductors.
3. The alarm system of Claim 1 wherein the signal
processor monitors for predefined voltage and current
20 levels at the two conductors.
4. The alarm system of Claim 2 wherein the mixer applies
predefined voltage and current levels at the two
conductors.

BURGLAR ALARM SYSTEM HAVING REDUCED WIRING

ABSTRACT

5 Normal hard-wired domestic burglar alarms have cables with
six conductors extending between the alarm controller and
each remote input/output device (such as an entry keypad).
The present alarm system has an alarm controller, a remote
input/output device, a cable extending from the alarm
10 controller to the remote input/output device, the cable
comprising two conductors only, providing power to the
remote input/output device. A signal processor at the
controller monitors and processes voltage and current in
the conductors to affect functions of the alarm system. A
15 mixer at the remote input/output device processes voltage
and current in the conductors to affect functions of the
alarm system.

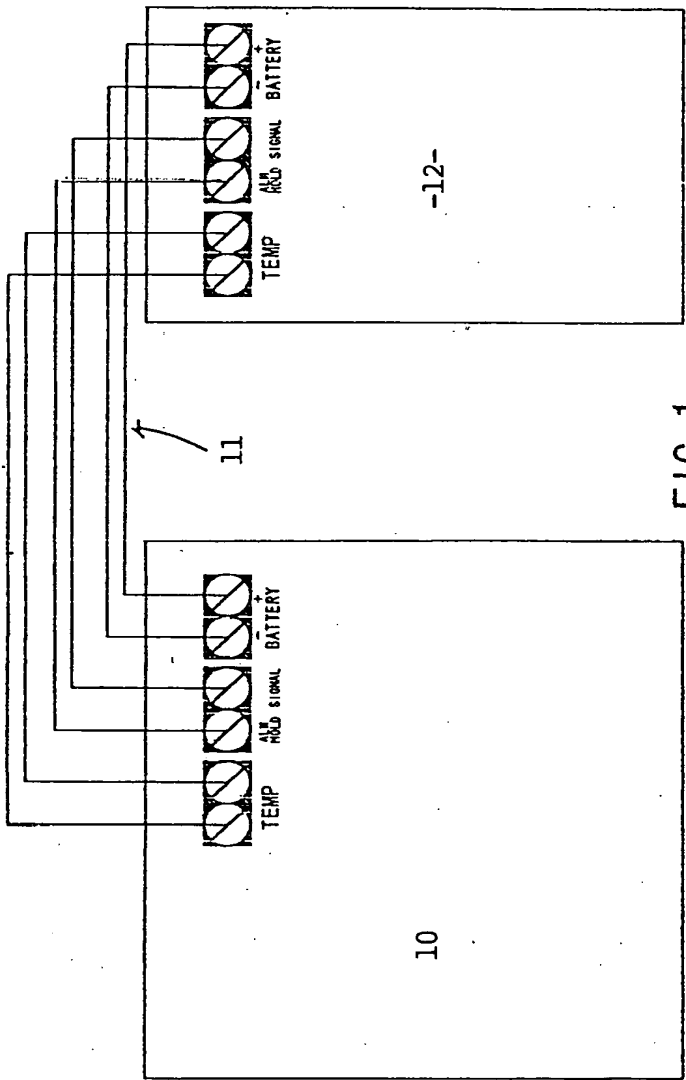


FIG 1
(PRIOR ART)

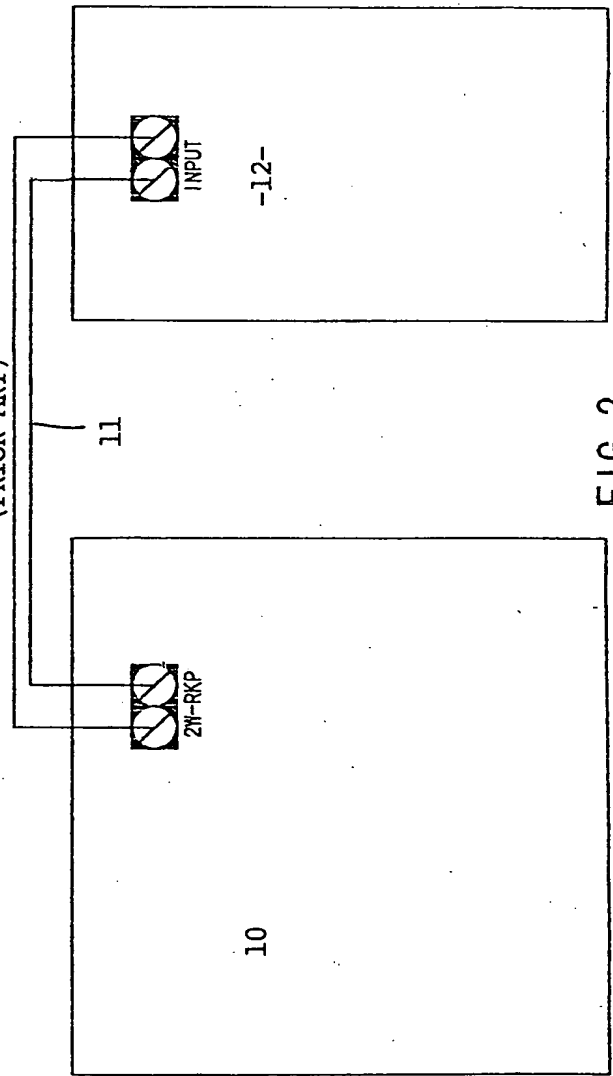


FIG 2



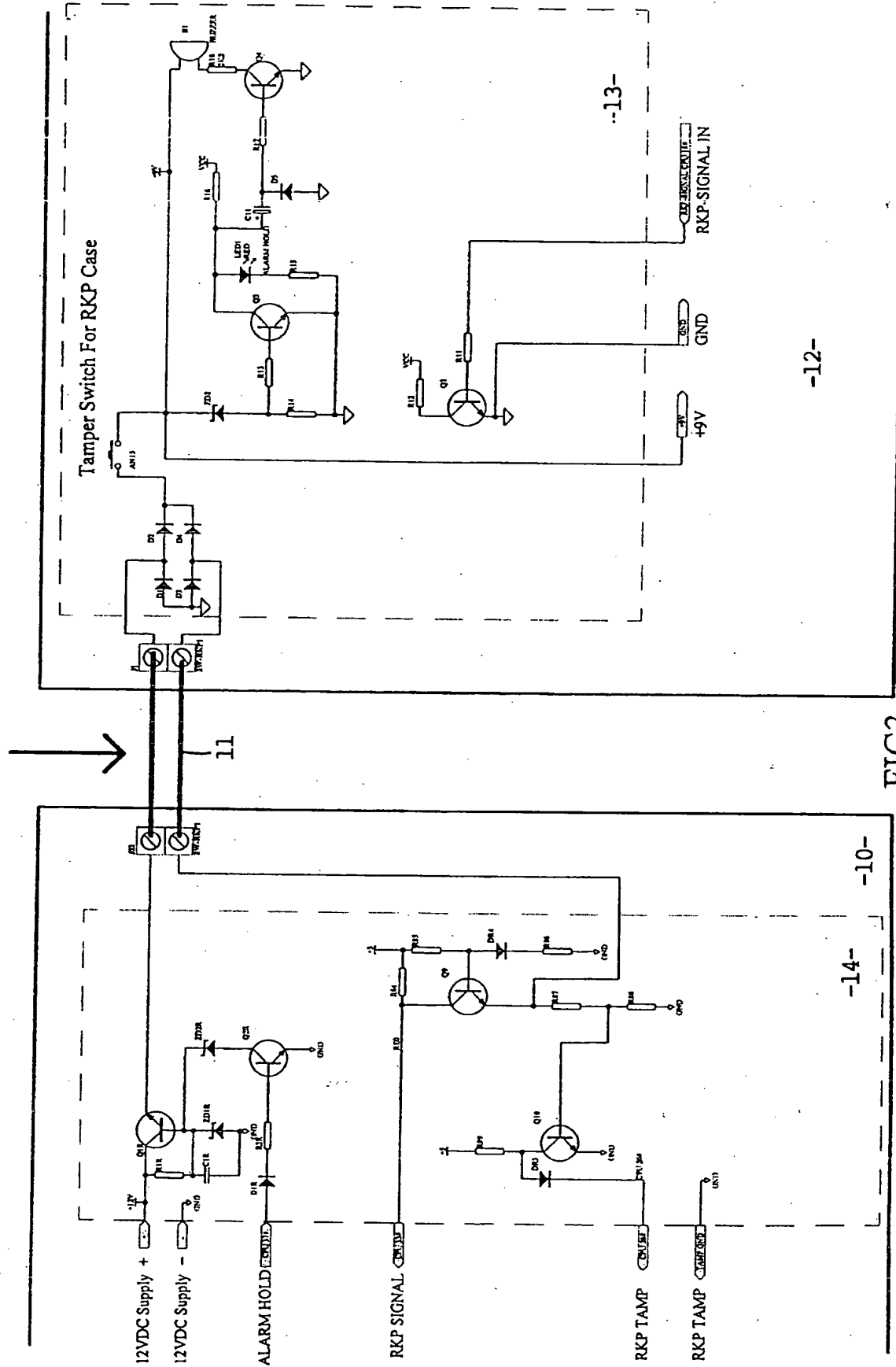


FIG3

-12-

-14-

-10-



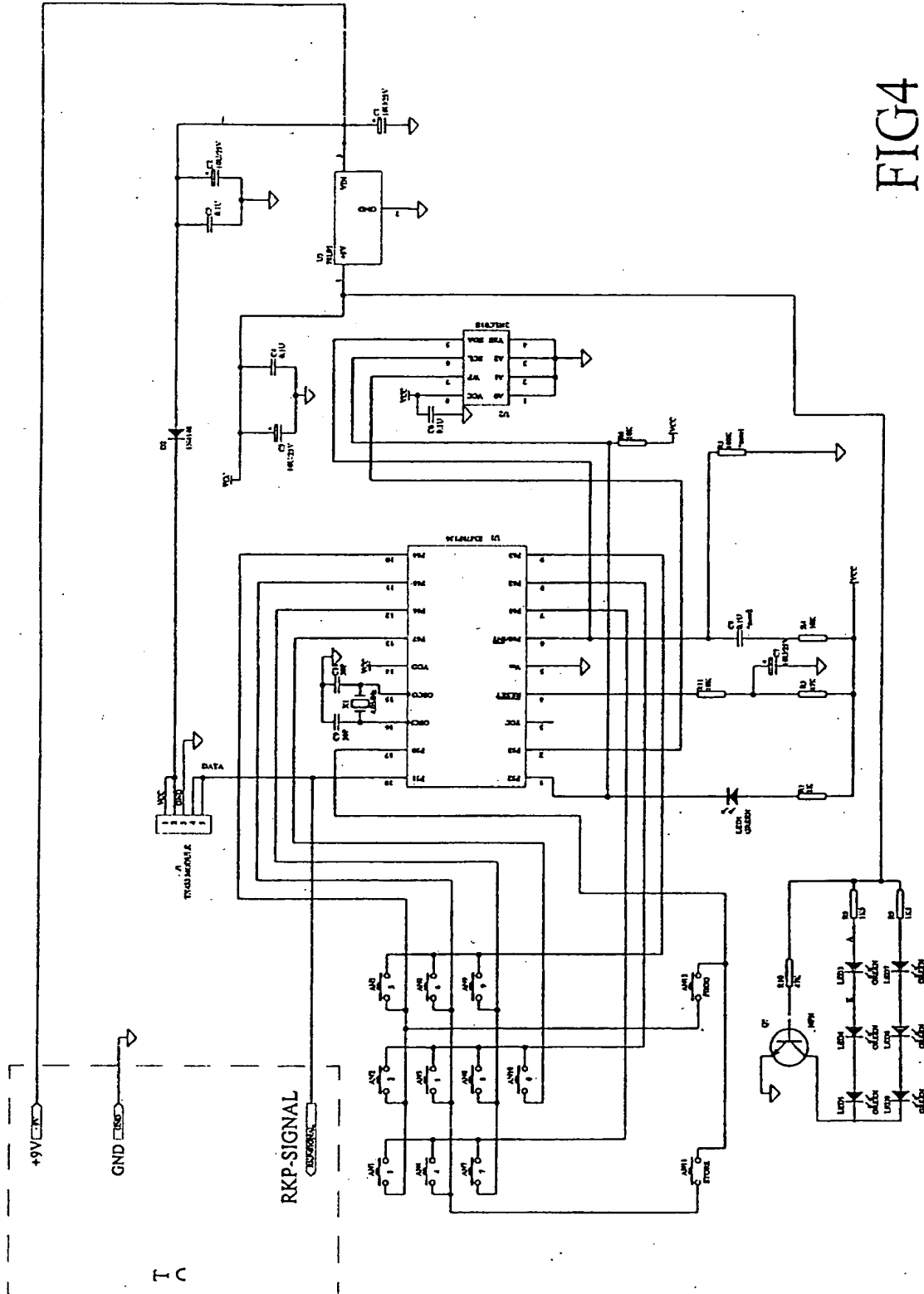


FIG4



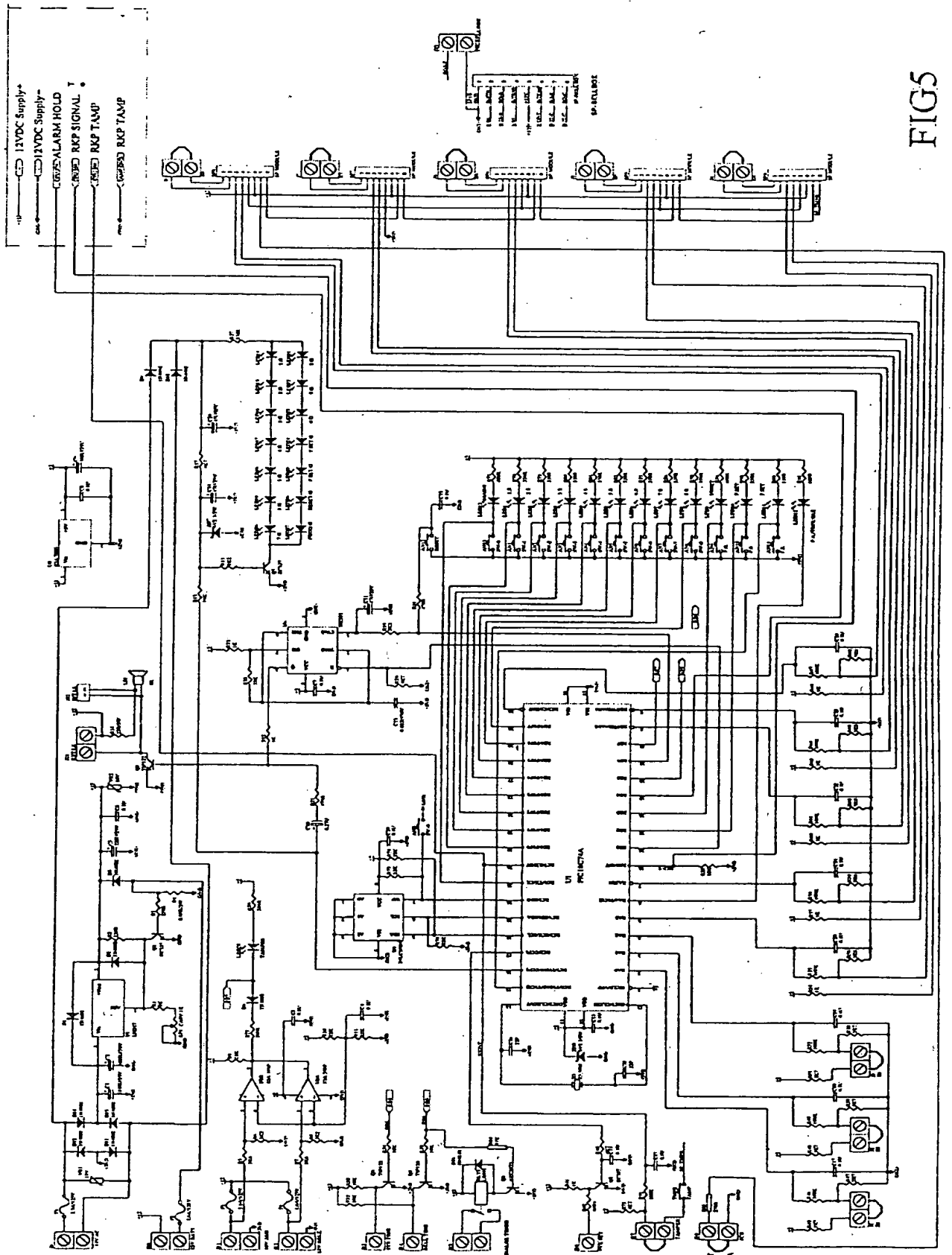


FIG5

1000

1000

1000